Business case: ICT Non-Recurrent Customer Technology Program: Customer Notification System Replacement

2025-30 Regulatory Proposal

Supporting document 5.12.19

January 2024

SA Power Networks

Empowering South Australia

Contents

Glossary

Acronym / term	Definition
ABS	Australian Bureau of Statistics
AEMC	Australian Electricity Market Commission
AER	Australian Energy Regulator
BAU	Business as usual
Capex	Capital expenditure
CNS	Customer notification systems
CRM	Customer relationship management system
DNSP	Distribution Network Service Provider
DXP	Digital experience platform
EV	Electrical Vehicles
FTE	Full Time Equivalent
ICT	Information and Communication Technology
IT	Information Technology
NER	National Electricity Regulation
NERR	National Electricity Retail Rules
NMI	National Metering Identifier
NPV	Net present value
Opex	Operating expenditure
RCP	Regulatory control period
SaaS	Software as a Service
SOCI	Security of Critical Infrastructure Act
SMS	Short message service

1. About this document

1.1 Purpose

This document provides a business case to support forecast expenditure for the 2025–30 regulatory control period (**RCP**) on the replacement of the customer notification system (**CNS**), which comprises one input to our overall ICT asset replacement expenditure.

1.2 Expenditure category

- Non-network ICT capex: Non-recurrent – Large replacement/upgrade

1.3 Related documents

Table 1: Related documents

Title	Author	Version / date
5.12.1 - IT Investment Plan 2025-30	SA Power Networks	Jan 2024
5.12.17 - Customer Program: Website replacement Business Case	SA Power Networks	Jan 2024
5.12.18 - Customer Program: Consolidate Customer Portals Business Case	SA Power Networks	Jan 2024
5.12.20 - Customer Program: Meter Data Insights System Replacement Business Case	SA Power Networks	Jan 2024
5.12.21 - Customer Program: CRM Replacement & Data Consolidation Business Case	SA Power Networks	Jan 2024
5.12.22 - Customer Program: Personalised on Demand Services Business Case	SA Power Networks	Jan 2024
5.12.27 - Program Overview - Customer Technology Program	SA Power Networks	Jan 2024
IT Asset Management Plan	SA Power Networks	Jan 2024

2. Executive summary

At SA Power Networks, we care about our customers and want to ensure their needs are met. Of all the work we do, notifying a customer of a planned power outage is one of the more important tasks. We recognise the impact an outage can have on a customer, whether they are working from home or running a business. When the customer is a life support customer[1], this notification achieves a higher level of importance, because the notification can mean the difference between sustaining life and causing serious harm. The importance of this notification is also encoded in our regulatory obligations[2]. We must notify customers, including life support customers, about a planned interruption[3] to their electricity supply.

We rely on a legacy customer notification system (**CNS**) to perform notification functions. Our CNS is a bespoke application that has grown organically over 20 years, with integrations across several other customer and network systems. It is a core system that is critical to customer services and our business in general. However, the age and complexity of the solution means the CNS can get notifications wrong, resulting in breaches of our obligations to our life support customers. CNS can fail in its core role: to deliver notifications to the right people at the right time. Hence it is no longer fit-for-purpose and needs to be replaced.

The key drivers for change include the following:

Historic occurrence of life support notification breaches (risk of life support customer harm)

There have been seven life support notification breaches from 2018–2022 due to process, system, training, and governance failures.

An increasing number of planned network activities creating increasing risk over time

During the last five-year period, the number of planned outages managed through the CNS solution increased by approximately 10% year on year. Looking forward to the 2025–30 RCP, we are anticipating that the number of planned outages will increase further due to ageing assets and the increased forecast in work on the network.

An increasing number of registered life support customers

SA Power Networks has observed a significant increase in the number of life support customers, which grew by 320% from 2016 to 2023.

A legacy system that is no longer fit for purpose

An assessment of the system's capabilities was completed recently and the solution was deemed not fit for purpose due to its aged underlying architecture, poor solution to system capability alignment and out-of-system/manual processing.

Significant manual intervention and effort, resulting in human error risk

As a result of a number of known weaknesses, our teams have developed a very low level of trust in the notification decisions the CNS makes. Teams now expend significant manual effort across Customer, IT and Field Services teams on interventions, reviewing and correcting data. This level of manual oversight presents not only a human-error risk but also burden and stress on our teams, and drives significant avoidable costs.

This business case recommends replacing the current solution with a new solution. The total program expenditure for this preferred option **is $10.8 million[4], of which $10.5 million is within the 2025–30 RCP.**

[1] A customer is defined as life support where SA Power Networks has been provided with formal notification that a person residing at the customer's supply address requires eligible life support equipment in accordance with the National Energy Retail Rules.
[2] National Energy Retail Rules (NERR), Rule 124B(2)(a). Distributor must provide the life support customer with 4 business days written notice of a planned interruption to their electricity supply.
[3] NERR Rule 90 – provide customers with 4 business days' notice of a planned interruption.
[4] The financial figures in this document are in June 2022 dollars unless specified otherwise.

The 2025–30 RCP forecast is $10.2 million of non-recurrent capex, and $0.4 million of recurrent opex [5]. The net present value (**NPV**) over the 10-year period is $7.8 million and the overall residual risk rating is Medium.

Table 2: Costs, benefits and risks of alternative options relative to the base case over the 10-year period, $m, June 2022 real[6].

	Total program costs			2025–30 costs			Benefits	NPV[7]		Ranking
Option	Capex	Opex	Total	Capex	Opex	Total			**Risk level[8]**	
Option 0 – Maintain the existing systems and services 'as is' (Base case)[9]	–	–	–	–	–	–	–	–	**High**	**Not Credible**
Option 1 – Replace the current (legacy) solution with a modernised solution. **(Recommended)**	10.2	0.7	10.8	10.2	0.4	10.5	22.6	7.8	Medium	1
Option 2 – Consolidate all customer notifications capabilities onto a new notification platform.	12.8	4.7	17.4	12.8	2.2	14.9	22.6	2.3	Medium	2

Other options considered were:

- **Option 0 - Maintain the existing systems and services as is:** Does not decrease the risk of notification breaches, increases the monitoring overhead and risk of the ongoing operation of ageing technology. There were no quantified benefits and the residual risk was High.
- **Option 2 - Consolidate all customer notifications capabilities onto a new notification platform:** Introduces greater levels of technical complexity and cost. The NPV was $2.3 million and the residual risk was Medium.

The recommended option (replace the existing solution with a modernised solution) was selected because it:

- maintains our existing ability to comply to regulatory obligations related to planned interruption notifications
- reduces the risk of harm to a life support customer as a result of failing to notify them of a planned power outage
- provides all customers with better notifications, in accordance with their preferences, and our life support customers will be notified and better supported through changes to planned outages. This will allow them to make more-informed choices (eg. whether they should not work from home on the day of a planned outage)
- maintains our existing systems and services for planned work notifications at acceptable levels of risk
- simplifies the technology architecture and enhances the cyber security posture
- decreases the overhead and risks associated with managing both CNS changes and updates or changes to those key systems that are integrated to CNS
- aligns with increased customer demand for more real-time updates to changes in scheduled network work that impacts them

[5] The recurrent opex will be funded through business efficiencies. This is included for completeness on the NPV and we are not proposing a step change. We will seek to offset the costs with expected benefits.
[6] Note: Totals presented in tables throughout this document may not exactly match the sums of individual figures due to rounding
[7] Net present value (NPV) of the proposal over 10-year cash flow period from 1 July 2025 to 30 June 2035, based on discount rate of 4.05%.
[8] The overall risk level for each option after the proposed option is implemented.
[9] The costs and NPV of option 0 (base case) have been set to zero as the costs associated with this option have been included as benefits of other options as appropriate.

- allows for greater levels of automation and integration, significantly reducing the need for manual intervention and leading to efficiency gains, reduced risk of human error and improved data quality.

3. Background

3.1 The scope of this business case

The scope of this business case is to replace the existing CNS with a modern solution that is able to perform the core notifications functions. The CNS provides functionality to meet both regulatory obligations and customer expectations for timely and accurate delivery of notifications regarding planned work that results in service interruptions.

The solution comprises a suite of business-critical, integrated systems that we rely on in the overall management of the network for our customers. Core functions of the CNS include:

- **Notifications:** CNS determines which customers to notify and when, based on the network assets being worked on. Work onsite may only proceed once all customers are compliantly notified. Notifications are sent to customers through various channels, including SMS, emails, and letters (both post and hand delivery). Table 3 outlines the various notification channels we currently use.
- **Notifications based on safety net:** To accommodate the perceived risks of the CNS, a safety net for life support customers must be contained in the CNS business logic. This safety net identifies life support customers who are adjacent to the planned outage area but are not expected to be impacted directly by the outage. This ensures we can comply to our notification obligations in the event of mapping issues (linkage of National Metering Identifier (**NMI**) to the feeding network equipment). Where the solution is used to notify customers on behalf of a third-party, such as ElectraNet, it must be capable of supporting subsequent billing processes to that third party.
- **Notification compliance management:** Managed in the system and achieved when life support customers receive a letter or hand-delivered card. For non-life support customers, compliance is achieved via one written notification being either an email, short message service (**SMS**) or letter.

Table 3: Notification channels – life support and non-life support customers

	Planned work notification				**Planned work cancellation notice**
	Letter (only)	**Hand delivered card (only)**	**Digital (only)**	**Digital (SMS/email) + Phone call**	**Digital – SMS/email**
Life support customer	Compliant	Compliant	Non-compliant	Compliant	No
Non-life support customer	Compliant	Compliant	Compliant	Not required	Yes

The scope of the replacement of the business case takes into account the core CNS functions, as well as the numerous integrations feeding key information to CNS, as outlined in Figure 1.

The regulatory risks associated with the CNS are primarily related to life support customers. The life support obligations apply to a wide range of life support equipment and customers.

The Retail Rules define life support equipment to mean any of the following:

- An oxygen concentrator;
- An intermittent peritoneal dialysis machine;
- A kidney dialysis machine;
- A chronic positive airways pressure respirator;
- Crigler-Najjar Syndrome phototherapy equipment;
- A ventilator for life support; or
- In relation to a particular customer — any other equipment that a registered medical practitioner certifies is required for a person residing at the customer's premises for life support.

A customer is defined as life support where SA Power Networks has been provided with formal notification that a person residing at the customer's supply address requires eligible life support equipment in accordance with the National Energy Retail Rules (**NERR**).

3.2 Our performance to date

Our CNS is a bespoke solution developed in 2012 within our SAP (refer to Figure 1, above). The solution was developed to manage the planned work notification process, embed consistent process, and automate the processing of notifications across various customer channels, such as letter notification, SMS and email. In 2022, the CNS processed approximately 10,000 jobs and 724,860 SMS notifications to customers.

Currently, CNS receives data from multiple sources to determine which customers will be directly impacted by a planned outage. Errors are created due to differences in timing of integrations when updates and changes are made to data in the respective source systems that may not flow into CNS, or if they do, they're not in a sequence the CNS can make sense of. These synchronisation issues also cause business logic conflicts between CNS and source systems, creating issues that impact customer notifications and which must be monitored. Manual processes and workarounds are frequently required to consolidate information and handle changes or complex workflows. For example, if a new life support customer is

added into CNS on the day of the scheduled work and cannot be contacted, the work is typically cancelled on the day, impacting all other customers (including other life support customers who may have made plans to vacate their property during the outage), and driving increased costs.

To mitigate the risks created by CNS, we committed resources to overseeing CNS notification decisions across our Customer and Field Services teams. From Customer and Community, 2.5 full time equivalents (**FTE**s) are dedicated to reviewing CNS life support notification decisions. Field Services currently commits approximately one hour per planned outage to assessing the properties and customers impacted by the outage before commencing their field work. This equates to approximately 15 FTEs of effort across the organisation over the course of a year.

Despite these work arounds, failure to identify errors in notifications still occur, and resulting projects put in place to investigate, remediate, and respond to the Regulator can last more than a year and exceed $1 million in cost.

Table 4, details the historic life support breaches from 2020 to 2022, and the resultant actions taken. Table 5 in Section 3.3, summarises the breaches over a longer timeframe (2015–2022).

Table 4: Detailed historic life support notification breach events 2020–22

Year	Number of life support customers impacted	Incident	Management actions taken immediately due to breach	Required actions to minimise risk of future non-compliance
December 2020	9	System failure and training issue: Human input and system business rules discrepancy resulted in 'Complete hand notified' status being applied after cancellation messages already sent.	Engaged external consultancy to undertake a comprehensive review of the customer notification process (focused on life support customers), implemented improvements to address the recommendations.	Redesign the CNS processes and solution: • Improved synchronisation between notification rules • Design robust process for job cancellations • Notify life support customers of job cancellations
December 2020	1	System failure: 'No longer affected' messages sent to life support customers due to on-hold status of CNS, users not alerted to the on-hold status.		
March 2021	5	System failure: Human error with inappropriate system rules/warnings.	Cancellation messaging turned off for all customers (all over and above regulatory notification requirements). Actions taken to prevent reoccurrence.	• Further improvements to system altering to catch human input errors. • Improved integration method between CNS and feeding systems (move away from batch-oriented interfaces to real-time).
November 2021	1	Process failure: Crews proceeded one day early on outage without authorisation.	Reinforcement to all users of the process that all planned interruptions require phone into Dispatch for authorisation to proceed. Several actions implemented to prevent reoccurrence.	• Build robust process for job cancellations and associated system rules. • Enable notification to be sent in customers' preferred channels, including mail, hand delivery and electronic communications.
December 2022	3	Process failure: Job commenced earlier than advised to customer. Issue with notification time and date visibility to all teams corrected. System failure: Hand-delivery cards manually populated rather than system generated.	Issue with hand-delivered cards rectified. System changes to alert for early publishing. Update of all work instructions to also include time check.	• Downstream real-time system integration that prevents misalignment of job schedule and job notification data.

Non-life support customer notification breaches

Notification breaches to non-life support customers are currently recorded for information purposes. These events are not investigated in detail and accurate numbers of the total customers impacted are currently not well known. Reporting for non-life support notification breaches is based on customer reports.
We have identified 209 non-life support-customer-reported notification breaches across 2021–2022. The actual number of customers impacted may be significantly higher. Customers are left inconvenienced during these events; interruption to their power supply impacts their daily lives and decisions, such as impacting their ability to work from home, host a planned event, or go about their daily domestic duties.

3.3 Drivers for change

The key driver is to maintain the existing level of service and, where possible, prudently reduce the ongoing compliance risk for the life support notification obligation. The current CNS is an old, complex system that is currently costly to maintain and operate. The risk to its ongoing ability to deliver customer notifications and cost profile is only going to increase over the 2025–2030 period, as outlined below.

Historic occurrence of life support notification breach events

Due to process, system, training and governance failures, several life support notification breach events have taken place (as outlined in Table 4). Historic records show that there has been at least one occurrence of a life support notification breach per year during the last few years (Table 5):

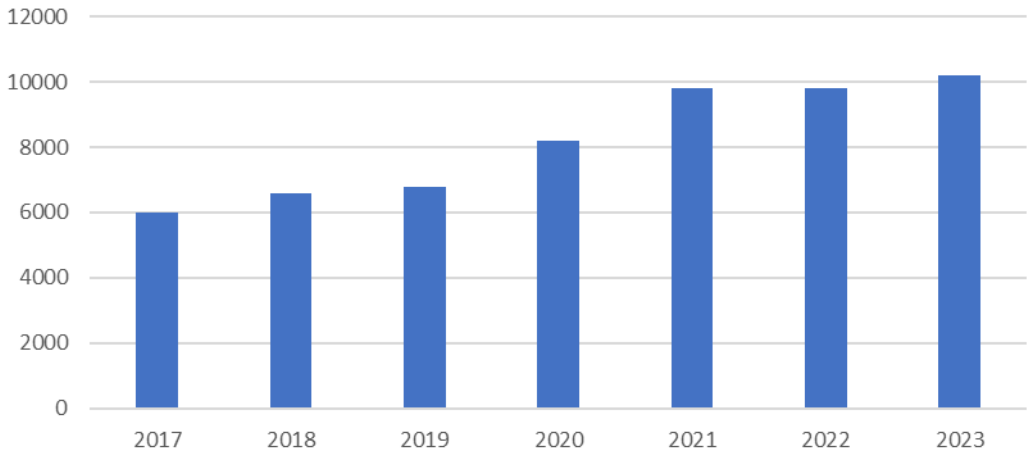
Table 5: Summary historic life support notification breaches 2015–22

Year	Life support customers impacted
September 2015	1
December 2015	6
February 2016	1
May 2018	1
June 2020	1
December 2020	9
December 2020	1
March 2021	5
November 2021	1
December 2022	3

Expected increases to the number of planned outages

During the last five-year period, the number of planned outages managed through the CNS solution have gradually increased year on year (see Figure 2). Looking forward to the 2025–2030 regulatory period, we are anticipating that the number of planned outages (and therefore required notifications) is expected to increase further due to ageing assets and the increasing amount of work on the network.

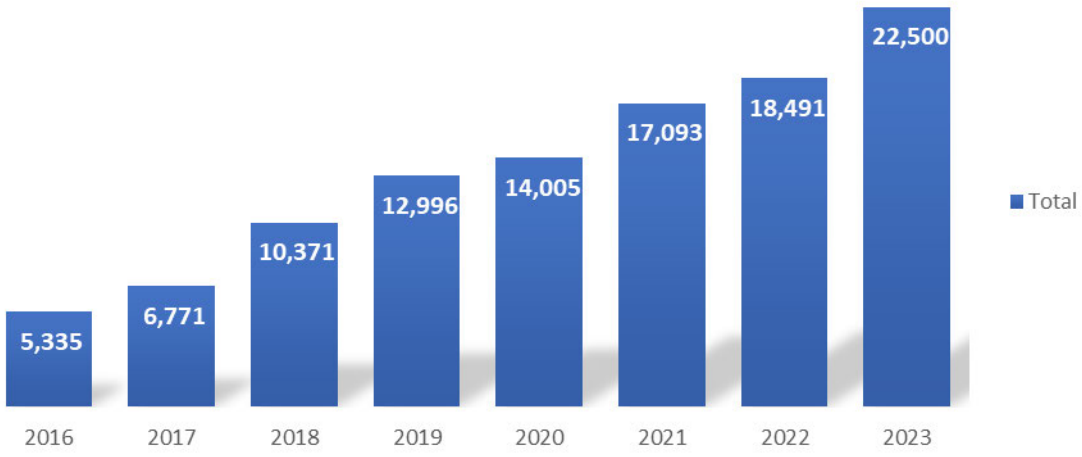
Figure 2: CNS volumes 2017–2023[10]



320% increase in the number of life support customers

We have observed a significant increase in the number of life support customers, which has grown by 320% from 2016 to 2023, refer to Figure 3.

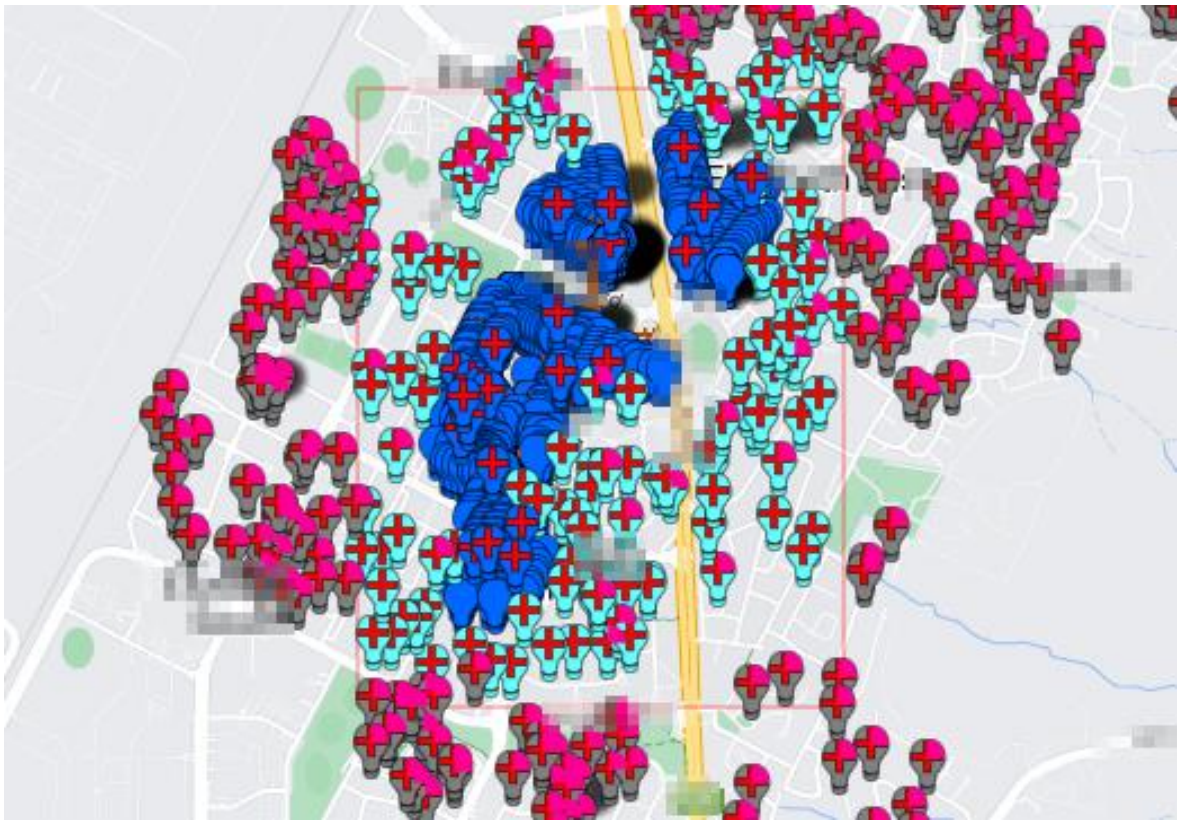
Figure 3: Life support customer registrations[11]



These increases relate to changes in customer circumstances and eligibility for life support status. This growth in life support registration has placed strain on the effective delivery and management of life support notifications and the associated level of service we can provide to all life support customers. Figure 4 shows an example of the concentration of life support customers.

[10] CNS volumes have been extracted from SA Power Networks system reporting
[11] Life support registrations are based on the recorded registrations in SA Power Networks systems reporting

Figure 4: Screengrab from our CNS system showing life support customer concentration in a suburb of Adelaide, where + indicates a life support customer

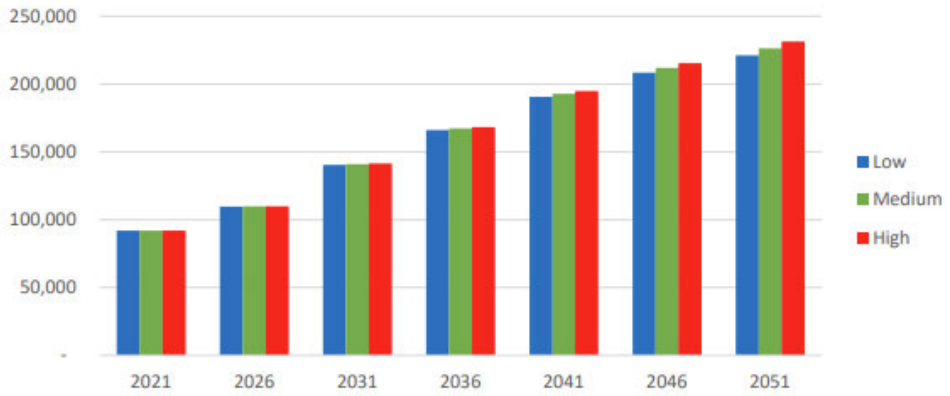


Current rules for life support registration are centred around the piece of equipment and not the medical assessment/condition of the customer and their associated reliance on electricity to supply life-sustaining equipment. We are currently advocating for a rule change to review the definition of a life support customer. A change to the definition would allow us to improve the services and support we currently provide. The revised definition is still being reviewed by industry, led by the Energy Charter in close collaboration with key industry stakeholders.

While the definition of a life support customer is pending review, changes in the delivery of health services and the age and general health of the population will continue to result in life support registrations. An example is the emergence of the hospital at home services being offered by the South Australian health sector[12]. The projected growth of the older population 80+ years is also expected to increase significantly, which may have impacts on life support registrations in the future (see Figure 5).

[12] Hospital at Home | Royal Adelaide Hospital (rah.sa.gov.au) https://www.rah.sa.gov.au/patients-and-visitors/leaving-hospital/hospital-at-home

Figure 5: Projected older population (80+ years), South Australia 2021–2051[13]



Ageing system that is no longer fit for purpose

An assessment of the system's capabilities was completed recently (2021) by an external consultant, with the solution deemed not fit for purpose due to its aged underlying architecture, poor solution-to-system capability alignment, and out-of-system/manual processing (refer to Figure 6).

Figure 6: CNS capability assessment summary[14]

Business	Information/Data	Application	Technology	User Access Management[1]
• Ability to support business requirements • Minimise manual work	• Quality/integrity/ currency of data • Single source of truth • Integration reliability	• Adaptability– support for future regulatory/ business changes • UX - Ease of use and overall user experience	• Functional alignment to the platform • Non-functional requirements • IT Support capability	• Appropriate controls and user access • Auditing capability

The following ratings were assigned against each assessment criteria:

5 = Fully meets the assessment criteria
3 = The assessment criteria is somewhat met however opportunities exist to improve this process
1 = The assessment criteria is only partially met and manual intervention is required in order to complete the business process
0 = Does not meet the assessment criteria

Significant manual checking and low level of trust

The CNS is used by a wide range of SA Power Networks teams and staff, including operational planning, works preparation, works schedulers, trader services workers, depot leaders, and customer communication teams. At present, there are ~120 users across the various teams.

As a result of a number of failures, our teams have developed a very low level of trust in the notification decisions the CNS makes. Teams now expend significant manual effort across Customer, IT and Field Services teams on interventions, reviewing and correcting data. Internal teams devote approximately 15 FTEs over the course of a year to checking life support notifications. Furthermore, 268 issues[15] have been raised as bugs and defects within CNS in the last 11 months alone.

[13] Department for Trade and Investment – Population Projections for South Australia and Regions 2021–2051 (published June 2023)
[14] CNS Fit for Purpose Internal Review, completed in August 2021
[15] CNS JIRA incident reports [10]

It is also true that this oversight, which stems from a historic distrust of the solution and the accuracy of the notifications, will continue to grow as the network undergoes a refresh in the next period. This level of manual oversight also presents a continued risk of human error.

Poor customer experience – life support customers do not receive job cancellation notifications

The current solution provides poor customer experience outcomes for life support customers experiencing a planned work interruption. Life support customers do not receive a notification for cancelled work, due to an elevated risk of notification error because of high levels of manual processing. Planned work cancellations occur frequently for a range of reasons. Examples of customer impacts include:

- arrangements made by a customer during the work, such as a decision to relocate, could have been avoided if the customer had been provided a cancellation notification, eg, relocate to health care centre/hospital for dialysis.
- customer complaints to SA Power Networks.
- customers' confidence in the notification process is impacted, particularly when they experience repeated cancellations without notification.

3.4 Industry practice

Our practices are comparable with other Distribution Network Service Providers (**DNSP**s) who have a high focus on planned work notification obligations, particularly related to life support customers. DNSPs have taken various system and process measures to mitigate the risk of life support customer notification breaches and improve the accuracy and reliability of planned outage notifications. There are currently no commercial off-the-shelf systems available to support a CNS, therefore DNSPs have developed their own CNS solutions.

The Victorian Essential Services Commission has included protections in their distribution code related to planned outage communications, including allowing customers to indicate their preferred contact channels. The code was amended to:

- improve the methods of notification for planned outages – customers can nominate their preferred contact channels, including text message and email.
- notify customers of cancelled or rescheduled outages with a reason why, as soon as practicable, where a customer has nominated a preferred digital contact channel.
- strengthen protections for life support customers who must always receive a hard copy notification, in addition to any digital notifications they nominate to receive.

4. The identified need

The underlying driver for investment action to be considered in this business case is containing and mitigating the increasing risks, and reducing costs associated with planned outage notifications, particularly involving life support customers. These risks include customers not receiving outage notifications, resulting in a range of possible consequences from being significantly inconvenienced to life support equipment being turned off, leading to potential physical harm. These risks and costs will increase, given the increased activity across our electricity network, the increased dependence on the network, the increasing number of life support customers and our ageing population.

In considering potential responses to this driver, we engaged with our customers on their desired service level outcomes, balanced against price outcomes, and considered our regulatory requirements under the National Electricity Rules (**NER**), National Electricity Law and jurisdictional regulations. As a result of these considerations, the identified need for replacing our CNS is as follows:

- To respond to customers' concerns[16], identified through our consumer and stakeholder engagement process, regarding their explicit service level recommendations that we:
  - keep customers informed, in a timely manner, regarding changes that impact them; and
  - keep everyone safe, and particularly the most vulnerable members of our community.
- To more cost-effectively maintain compliance with applicable regulatory obligations/requirements[17], in this case with specific reference to:
  - NERR Rule 90 – the distributor must provide all customers with four business days' notice of a planned interruption to their electricity supply
  - NERR Rule 124B(2)(a) – the distributor must provide all life support customers with four business days' written notice of a planned interruption to their electricity supply.
- To maintain the safety of our distribution network and system, in relation to the risks of harm to workers, consumers and community, through more reliable identification of impacted customers.
- To ensure the best long-term efficient cost for our customer and network services, through the prudent automation of key processes.

[16] This is pursuant to Clause 6.5.7(c)(5A) of the NER, which requires regard to be had to the extent to which forecast expenditure seeks to address the concerns of distribution service end users identified by the distributor's engagement process.

[17] This is pursuant to Clause 6.5.7(a)(2) of the NER, which requires expenditure in order to comply with all appliable regulatory obligations or requirements associated with the provision of standard control services.

5. Comparison of options

In this section we discuss the options considered for the CNS services.

5.1 The options considered

SA Power Networks seeks to replace the existing CNS, which is not fit-for-purpose as a cost-effective and reliable system for managing our current and future customer notification obligations. It needs to eliminate the overhead required to issue notifications to our most vulnerable customers. Currently, this involves a careful balance of managing the cost of providing adequate oversight against the efficiency of managing the network to the benefit of all our customers. This delicate balance often means that, while we work conscientiously to deliver the initial planned notification, our life support customers are unlikely to receive courtesy reminders of changes to planned outages, due to the increased risk of error and the cost of oversight required.

In exploring replacement options, we sought options to address current challenges and allow us to accurately notify all customers of initial planned outages and all subsequent changes in an equitable manner. Three options were explored for the replacement of the CNS and described the below.

Table 6: Summary of options considered

Option	Description
Option 0 – Maintain the existing systems and services 'as is' (Base case)	CNS will continue to function 'as is', receiving data from multiple external sources in batches, and failing to receive real-time updates on changes to network data. The risk of notification breaches is not decreased, and the manual overhead required to check the impact of planned outages on life support customers will increase, as the work on the network increases and technologies continue to age.
Alternative options	
Option 1 – Replace the current (legacy) solution with a modernised solution (Recommended)	The legacy CNS solution will be replaced with a modern solution for planned outages. CNS technology architecture is simplified, allowing us to maintain our existing ability to manage regulatory obligations related to planned interruption notifications and the current acceptable levels of risk.
Option 2 – Consolidate all customer notifications capabilities onto a new notification platform	CNS will be replaced with a modernised platform for both planned and other notifications, such as unplanned outages. Our existing ability to manage regulatory obligations and acceptable levels of risk will be maintained. This solution may introduce greater levels of technical complexity and cost.

5.2 Options investigated but deemed non-credible

The option of procuring a vendor-provided CNS solution was investigated and deemed non-credible. While the vendor market can provide generic large-scale notification software, our market scan indicated that there is no vendor in the marketplace at present who offers an industry-specific notification service suitable for meeting our regulatory obligations.

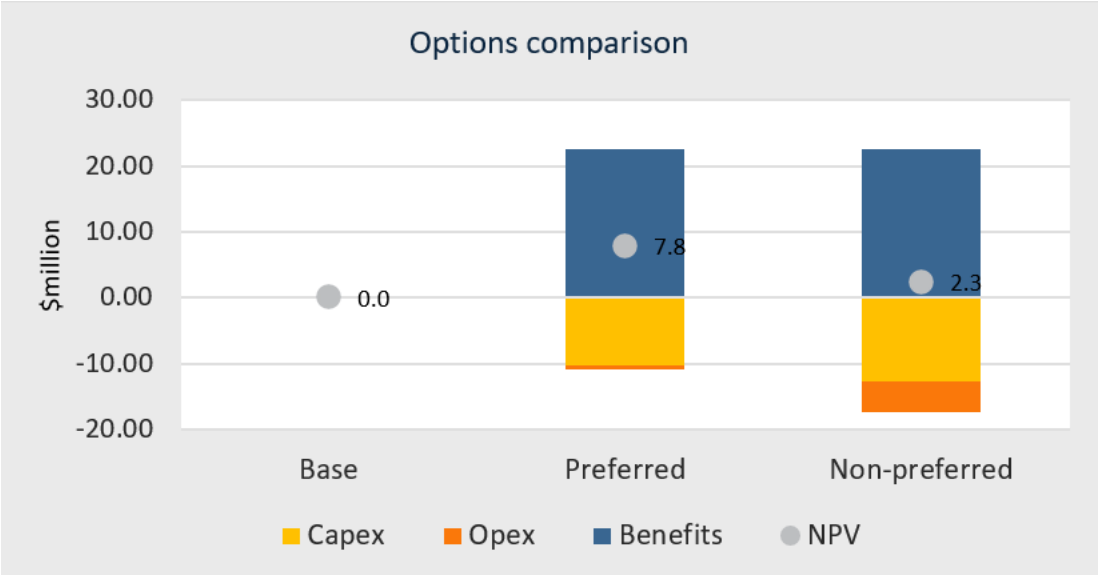
5.3 Analysis summary and recommended option

5.3.1 Options assessment results

Table 7: Costs, benefits and risks of alternative options relative to the Base case over the 10-year period, $m, June 2022 real.

Option	Total program costs			2025–2030 costs			Benefits[18]	NPV[19]	Risk level[20]	Ranking
	Capex[21]	Opex[22]	Total	Capex[23]	Opex[24]	Total				
Option 0 – Maintain the existing systems and services 'as is' (Base case)[25]	–	–	–	–	–	–	–	–	High	Not credible
Option 1 – Replace the current (legacy) solution with a modernised solution (Recommended)	10.2	0.7	10.8	10.2	0.4	10.5	22.6	7.8	Medium	1
Option 2 – Consolidate all customer notifications capabilities onto a new notification platform	12.8	4.7	17.4	12.8	2.2	14.9	22.6	2.3	Medium	2

Figure 7: Option comparisons



[18] Represents the total capital, operating, and customer benefits, including any quantified risk reductions compared to the risk of Option 0 (base case), over 10-year cash flow period from 1 July 2025 to 30 June 2035 expected across the organisation as a result of implementing the proposed option.
[19] Net present value (NPV) of the proposal over 10-year cash flow period from 1 July 2025 to 30 June 2035, based on discount rate of 4.05%.
[20] The overall risk level for each option after the proposed option is implemented. Refer to Refer to Appendix B – risk assessment for details.
[21] Represents the total capex associated with the proposed option over the 10-year cash flow period from 1 July 2025 to 30 June 2035.
[22] Represents the total opex increase associated with the proposed option above the current level of opex, over the 10-year cash flow period from 1 July 2025 to 30 June 2035.
[23] Represents the total capex associated with the proposed option over the 5-year cash flow period from 1 July 2025 to 30 June 2030.
[24] Represents the total opex increase associated with the proposed option above the current level of opex, over the 5-year cash flow period from 1 July 2025 to 30 June 2030.
[25] The costs and NPV of option 0 (base case) have been set to zero as the costs associated with this option have been included as benefits of other options as appropriate.

Assumptions

Key assumptions to note in relation to the NPV results above include:

- While Section 5.5.2, below, includes projected cost increases under Option 0, the NPV of these has been assumed to be a cost avoidance benefit of Options 1 and 2 when calculating their NPVs. This enables them to be more easily compared to a zero base for Option 0.
- It is expected that cost reductions identified will be used to offset the additional recurrent costs of new services/platform capabilities and reduce/avoid the realisation of future cost increases.

5.3.2 Recommended option: Option 1 – Replace the current (legacy) solution with a modernised solution

Option 1 is the recommended option. CNS will be replaced with a modernised platform that is fit for purpose and more aligned to business requirements, reducing manual overheads and providing for easier maintenance.

This recommended option provides significant benefits, and these include:

- It enables us to meet our regulatory obligations regarding planned work outages, in a way that improves the efficiency of the notification process.
- It enables better notifications for all customers, in accordance with their preferences, and our life support customers will be notified and better supported through changes to planned outages.
- This option significantly reduces the risk of human error and improves data quality.
- Customers' needs for proactive notifications, including paper based and digital notifications, are met and aligned with the increased customer demand for more real-time updates to changes in scheduled network outages that impacts them.
- In the event of multiple interruptions associated with a planned job, or when conditions change with an existing job, the system succeeds in meeting the customer notification requirements without the need for highly inefficient manual interventions.
- This option is capable of enabling us to expand our notification capabilities across a broader range of notifications, such as property attendance, generation curtailment, unplanned outage notifications in the future.

This option mitigates the current state risks by providing a CNS solution design that improves the accuracy and timeliness of affected customers' notifications, reducing the oversight required and the risk of notification breach. It will enable continuous improvements to be managed in a traceable, auditable, and sustainable way.

Appendix A lists the cost and benefit models for each option. Appendix B provides the detailed risk analysis for each option.

5.4 Comparison of options: Option 0 – Maintain the existing systems and services as is

5.4.1 Description

CNS will continue to function 'as is', receiving data from multiple external sources in batches, and failing to receive real-time updates on changes to network data. It will use NMI/property data to identify the location of life support customers.

The risk of notification breaches is not decreased, and the manual overhead required to check the impact of planned outages on life support customers will increase, especially with regard to increases in work on the network planned for 2025–2030. At present, a life support notification breach risk has been categorised with a High residual risk rating in the organisational risk register, noting that the controls have been deemed acceptable, but the consequence of failure is Catastrophic.

In the 2025–30 regulatory period, SA Power Networks plans to increase the amount of work conducted on the network. This will increase the volume of CNS jobs and therefore, the number of planned outages conducted over this period. We know the time spent on each manual verification check is currently timed at approximately 60 minutes per planned work job. When extrapolated out, this overhead totals approximately 15 FTE worth of effort per year. The oversight that will be required to ensure our life support customers are notified and the risk of a regulatory breach is mitigated becomes unsustainable in the future.

Maintaining life support customer information will continue to present administrative overheads to SA Power Networks. Life support information management practices are largely manual and reliant on processing information from third-party data sources, which can be incomplete/poor quality. The existing CRM solution does not provide the modern customer data management and governance capabilities that could decrease the administrative overhead for ensuring appropriate data-quality levels.

SA Power Networks notes that the definition of a life support customer is currently under review, which in the future, could potentially decrease the total number of life support customers needing to be managed. The rule change is due to be submitted to the AEMC in early 2024.

The current CNS risks are not mitigated by this option.

The inefficiencies in the current CNS solution are leading to unsustainable governance practices and significant manual validation in the future, meaning that this option is not recommended.

5.4.2 Costs

Table 8: Option 0 – Costs by cost type ($m June 2022 real)

Cost type	2025–26	2026–27	2027–28	2028–29	2029–30	Total 2025–30	2030–31	2031–32	2032–33	2033–34	2034–35	Total 2025–35
Capex	–	–	–	–	–	–	–	–	–	–	–	–
One-off opex	–	–	–	–	–	–	–	–	–	–	–	–
Recurrent opex	0.0	0.1	0.1	0.2	0.2	0.6	0.2	0.2	0.2	0.2	0.2	1.4
Total	0.0	0.1	0.1	0.2	0.2	0.6	0.2	0.2	0.2	0.2	0.2	1.4

5.4.3 Risks

Table 9: Option 0 – Risk assessment summary

Risk consequence category	Risk description	Current risk level[26]
Governance – Non-compliance with regulatory legislative and/or other obligations.	Inability to properly maintain systems due to system and process overheads and complexities. This can increase the risk of creating errors during remediation efforts.	High
Governance – Non-compliance with regulatory legislative and/or other obligations **Safety** – Harm to a worker, contractor, or member of the public **Governance** – Litigation and/or penalties **Customers** – Failure to deliver on customer expectations	There is a risk that life support customers fall through the information gap created by the lack of synchronicity between the systems, due to batch processing of CNS data, rather than real-time updates.	High
Governance – Non-compliance with regulatory legislative and/or other obligations **Performance and growth** – Financial impact – Cash loss or earning impacts **Safety** – Harm to a worker, contractor, or member of the public **Governance** – Litigation and/or penalties **Customers** – Failure to deliver on customer expectations	Technical or human error in identifying life support customers, resulting from significant manual processing and rechecking.	High
Performance and growth – Financial impact – Cash loss or earning impacts	The cost of sustaining an appropriate level of governance and overhead to meet regulatory notification obligations will reach unsustainable levels in the future.	High
Overall risk level		High
Performance and growth – Financial impact – Cash loss or earning impacts	The cost of sustaining an appropriate level of governance and overhead to meet regulatory notification obligations will reach unsustainable levels in the future.	$25M – $100M
Overall risk cost		**$25M – $100M**

[26] The level of risk post current controls (i.e. after considering what we currently do to mitigate the risk).

5.4.4 Quantified benefits

Any quantifiable benefits associated with avoidance of an implementation cost are offset by the significant investment in overseeing the current CNS notification decisions. As the number of planned outages grows as part of the refresh, and the number of life support customers escalates, the cost of oversight will rapidly outstrip any perceived benefit of avoiding an implementation cost now.

5.4.5 Unquantified benefits

There are no unquantified benefits.

5.5 Comparison of options: Option 1 – Replace the current (legacy) solution with a modernised solution (Recommended)

5.5.1 Description

Option 1 is the recommended option. This option is dependent on CRM (and the associated business case) to identify life support customers (rather than the NMI) and to issue notifications to customers impacted by a planned outage.

This approach mitigates current state risks through the following:

- Provides all customers with better notifications, in accordance with their preferences, and our life support customers will be notified and better supported through changes to planned outages.
- A simplification of solution architecture with clear traceable, auditable business rules.
- Integration of key systems will be reviewed and enhanced to ensure timing of integrations does not create additional issues.
- Automation and improved integration of processes, reducing the requirement for manual processing and checking of customer and NMI data.
- Processing of planned outage updates in real-time, improving timeliness and accuracy of customer notifications.

The CNS will be replaced with a modernised platform that is easily maintained. The CNS technology architecture will be simplified to allow for greater levels of automation and integration, leading to efficiency improvements for existing manual processes and workarounds by our staff. This will also result in improved data quality, and a reduced risk of human error.

The replacement solution will maintain our existing ability to manage regulatory notification obligations related to planned work notifications. The simplified architecture will mean that the CRM – a system that is more suitable to maintaining detailed customer information – will be viewed as the main system of record for identifying customers as life support.

CRM acts as the source of truth for customer data, including life support status, communication preferences and their associated NMI/properties. The new CNS will determine, based on information from integrated source systems, which NMIs will be affected by a planned outage. Information will be sent back to CRM to issue the notifications. We will continue to record whether the customer associated with a NMI/property has been compliantly notified.

The life support tag in CRM will be attributed directly to the individual and NMI, rather than only to the NMI/property, and will be used to enhance the accuracy of notifications to life support customers. The increased reliability of life support customer data and the simplified logic within CNS and its feeder systems means that life support customers will be notified consistently throughout the lifecycle of a planned

outage, including rescheduling and rescoping. Staff will also have more trust in the accuracy of life support customer data.

Change management activities will need to be conducted with the network teams to ensure appropriate user adoption and build trust in the system.

5.5.2 Costs

Table 10: Option 1 – Costs by cost type ($m June 2022 real)

Cost type	2025–26	2026–27	2027–28	2028–29	2029–30	Total 2025–30	2030–31	2031–32	2032–33	2033–34	2034–35	Total 2030–35
Capex	1.2	6.8	2.2	–	–	10.2	–	–	–	–	–	10.2
Project opex	–	–	–	–	–	-	–	–	–	–	–	–
Recurrent opex	0.0	0.1	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.7
Total	1.2	6.9	2.3	0.1	0.1	10.5	0.1	0.1	0.1	0.1	0.1	10.8

5.5.3 Risks

Table 11: Option 1 – Risk assessment summary

Risk consequence category	Risk description	Residual risk level[27]
Governance – Non-compliance with regulatory legislative and/or other obligations	Inability to properly maintain systems due to complex system logic built into the CNS that is not accurately documented. This can increase the risk of creating errors during remediation efforts.	Low
Governance – Non-compliance with regulatory legislative and/or other obligations	There is a risk that life support customers fall through the information gap created by the lack of synchronicity between the systems, due to batch processing of CNS data rather than real-time updates.	Medium
Safety – Harm to a worker, contractor or member of the public. **Governance** – Litigation and/or penalties.	Technical or human error in identifying life support customers, resulting from significant manual processing and rechecking.	Medium
Customers – Failure to deliver on customer expectations.	The cost of sustaining an appropriate level of governance and overhead to meet regulatory notification obligations will reach unsustainable levels in the future.	Low
Governance – Non-compliance with regulatory legislative and/or other obligations. **Performance and growth** – Financial impacts – Cash loss or earning impacts.	Technical or human error in identifying life support customers, resulting from significant manual processing and rechecking.	Low
Overall risk level		Medium

[27] The level of risk post current controls (ie after considering what we currently do to mitigate the risk).

5.5.4 Quantified benefits

Quantified benefits for this option relate to:

Cost savings

- Reduction of mail/call/hand delivery of CNS notifications, replaced by push app notification ($0.1 million)

Cost avoidance

- Avoidance of ongoing FTE governance overheads (network and non-network) required to check accuracy of CNS communications ($8.5 million)
- Avoidance of ongoing FTE time required to correct, test, and sustain the current CNS ($5.9 million)
- Avoidance of additional FTE costs being incurred as the number of Contact Centre calls are reduced, due to improvements in notifications ($0.04 million)
- Avoided increase in costs that would be incurred under the Option 0 Base case ($1.4 million)
- Avoidance of reliance on legacy systems that are no longer supported by the vendor, leading to technical debt overhead to maintain ($3.0 million)

Customer benefit

- Avoidance of time customers spend on calls with SA Power Networks as notifications are improved and the number of calls to the Contact Centre is reduced ($0.03 million)

Risk monetisation

- Avoidance of organisational response costs related to a breach event ($3.7 million)

It should be noted that, while the investment in our CNS shows a significant positive NPV due to the current very high level of manual oversight it requires, these benefits can only be achieved through the new CNS' integration with our proposed new CRM and updated portals platform.

Table 11: Option 1 – Benefits by expenditure type ($m June 2022 real)

Cost type	2025–26	2026–27	2027–28	2028–29	2029–30	Total 2025–30	2030–31	2031–32	2032–33	2033–34	2034–35	Total 2025–35
Cost savings	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Cost avoidance	0.6	0.8	1.7	1.9	2.0	7.0	2.3	2.3	2.4	2.4	2.4	18.8
Customer benefit[28]	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Risk monetisation	-	-	0.1	0.1	0.1	0.3	1.5	0.1	0.1	1.5	0.1	3.7
Total	0.6	0.8	1.8	2.0	2.2	7.4	3.8	2.4	2.5	4.0	2.6	22.6

5.5.5 Unquantified benefits

The unquantified benefits of a CNS replacement are:

- Alignment with evolving customer demands and regulatory requirements will be simplified and easier to implement due to an easily documented history of system changes, real-time updates, and other efficiency savings.

[28] Distinguishing the business benefits from direct benefit to customers, calculated as Customer Value of Time, which is consistent with submissions by other DNSPs such as CitiPower, Ausgrid, and Endeavour Energy.

- The health and wellbeing of staff will be improved as they will be less stressed when managing planned work notifications.
- Customers should receive an improved customer experience, eg, life support customers will be able to receive planned work cancellation notifications in their preferred channel.
- Avoidance of Customer Service Gestures paid to customers to help resolve a complaint.
- Avoidance of fines and penalties related to regulatory breaches.
- Negative SA Power Networks reputational impacts.

For these reasons, Option 1 is the recommended option.

5.6 Comparison of Options: Option 2 – Consolidate all customer notifications capabilities onto a new notification platform

5.6.1 Description

CNS will be replaced with a modernised platform that is easily maintained. All notifications, including both planned and unplanned outages, will be issued out of an omni-channel notification system. Notification channels will include SMS, mobile, web and direct mail, and will be informed by customer communication preferences recorded in our CRM.

This approach to broadcasting customer notifications will allow us to bring planned and unplanned customer communications into one common platform, expanding notification opportunities into communication that considers and responds to customer preferences. Implementing an omni-channel notification system will also factor in channel cost and compliance when distributing outage notifications. This ensures that our customers, especially life support customers whose dependence on accurate and timely notifications is critical, are successfully and securely contacted via their preferred channel.

Designing a system that incorporates a multi-channel and service notification system can increase the complexity of the integration, potentially increasing the risk of project delays and miscommunications. However, if orchestrated and managed correctly, the system will improve the accuracy and reliability of planned work notifications for life support customers, eliminating the risk of notification breaches, and enabling us to meet our regulatory requirements for customer notifications.

Option 2 mitigates the current state risks by providing an integrated CNS solution that responds to customer communication requirements, allows for continuous improvements to be made in a traceable, auditable way, and improves accuracy in notifications of affected customers in a timely manner, reducing the risk of a notification breach.

Change management activities will need to be conducted with the network teams to ensure appropriate user adoption and build trust in the system.

This option can deliver significant additional value to our customers through notifications for unplanned outages, and fully enables an omni-channel notification experience. However, it is unable to deliver any quantifiable benefits beyond those delivered by Option 1 for the additional investment required. For this reason, Option 2 is not recommended.

5.6.2 Costs

Table 12: Option 2 – Total cost by cost type ($m June 2022 real)

Cost type	2025–26	2026–27	2027–28	2028–29	2029–30	Total 2025 – 30	2030–31	2031–32	2032–33	2033–34	2034–35	Total 2025–35
Capex	0.7	6.1	5.5	0.4	-	12.8	-	-	-	-	-	12.8
Project opex	-	-	0.4	-	-	0.4	-	-	-	-	-	0.4
Recurrent opex	0.0	0.1	0.4	0.7	0.6	1.8	0.5	0.5	0.5	0.5	0.5	4.3
Total	0.8	6.2	6.3	1.0	0.6	14.9	0.5	0.5	0.5	0.5	0.5	17.4

5.6.3 Risks

Table 13: Option 2 – Risk assessment summary

Risk consequence category	Risk description	Residual risk level[29]
Governance – Non-compliance with regulatory legislative and/or other obligations	Inability to properly maintain systems due to complex system logic built into the CNS that is not accurately documented. This can increase the risk of creating errors during remediation efforts.	Low
Governance – Non-compliance with regulatory legislative and/or other obligations **Safety** – Harm to a worker, contractor, or member of the public. **Governance** – Litigation and/or penalties **Customers** – Failure to deliver on customer expectations	There is a risk that life support customers fall through the information gap created by the lack of synchronicity between the systems, due to batch processing of CNS data, rather than real-time updates.	Medium
Governance – Non-compliance with regulatory legislative and/or other obligations **Performance and growth** – Financial impact – Cash loss or earning impacts **Safety** – Harm to a worker, contractor, or member of the public **Governance** – Litigation and/or penalties **Customers** – Failure to deliver on customer expectations	Technical or human error in identifying life support customers, resulting from significant manual processing and rechecking.	Medium

[29] The level of risk post current controls (i.e. after considering what we currently do to mitigate the risk).

Performance and growth – Financial impact – Cash loss or earning impacts	The cost of sustaining an appropriate level of governance and overhead to meet regulatory notification obligations will reach unsustainable levels in the future.	**Low**
Culture and workplace – Misalignment in the beliefs and behaviours of workers, management, and customers **Performance and growth** – Financial impact – Cash loss or earning impacts	Staff, including field services, do not build trust in the system, and continue to employ the current manual workarounds.	**Low**
Overall risk level		**Medium**

5.6.4 Quantified benefits

The benefits for Option 2 are aligned with those identified in Option 1. Any quantifiable benefits associated with avoidance of an implementation cost are offset by the significant investment in overseeing the non-preferred option.

5.6.5 Unquantified benefits

All benefits as stated in Option 1 are applicable to Option 2.

Additionally, this option provides an expansion of notification capabilities for SA Power Networks across planned and unplanned outages. It incorporates an omni-channel communication approach, ensuring customers are contacted through a channel that aligns with their preferences.

Consolidated communications will eliminate inconsistencies and create a frictionless process, meeting the communication expectations of the contemporary customer. This option supports the future technology required to help us deliver our customers' desired communication experiences.

6. Deliverability of recommended option

6.1 Customer program

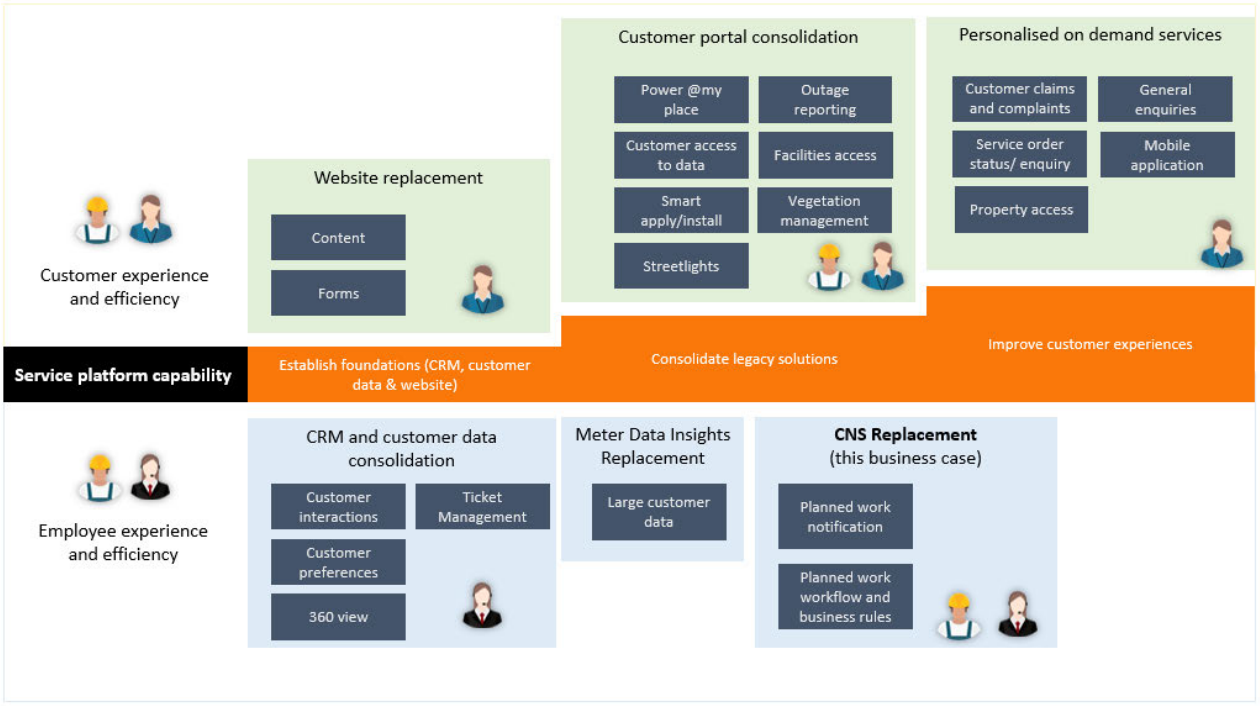
This CNS project forms part of the Customer Technology program of work. The program is comprised of an integrated set of six initiatives, designed to replace or upgrade a number of our core customer systems and deliver the expected long-term technology capabilities to maintain our current levels of service, meet the increases in customer demand as a result of the energy transition, as well as our overall increase in network activity, and do so in a secure, cost-effective manner.

Key benefits are:

- **For our customers:** reduce risk and inconvenience through receiving accurate planned outage-related information and associated updates.
- **For our employees:** efficiently manage and execute planned outages while minimising risk to customers.

This program is summarised in Figure 8. We expect this program will deliver significant benefits to customers.

Figure 8: Proposed 2025–2030 Customer Technology Program



The program assumes a progressive build of capabilities over time. Key delivery considerations and dependencies include:

- The CNS is planned to leverage the foundational CRM capabilities as they are delivered.
- Given the impact on Field Services, the CNS replacement project will also be planned to consider Field Services-related projects that may create dependencies, such as a replacement of field service management solution Click, and the Asset Management Transformation program.
- The replacement of the solution will be completed early in the period (post-CRM replacement) and will enable field-based employees' skills to be redirected from office-based administrative duties to field duties (providing crew support and leadership); the additional capacity will be absorbed as part of the proposed uplift in network replacement work activity.

This option also enables us, in later regulatory periods, to extend capability to include notifications for both planned and unplanned outages and leverage omni-channel capabilities as they are developed. Notification preferences will continue to be informed by customer communication preferences recorded in the CRM.

The delivery approach assumes shared project resources across the Customer program (program manager and a pool of skilled delivery FTE, including architect, business analyst, developers and testers). This approach avoids ramp-down/ramp-up costs and supports a lower-cost/more efficiency delivery. This approach is consistent with the program delivery methodology used for similar projects at SA Power Networks. If a program approach is not adopted, the efficiency opportunity is missed, resulting in an estimated increase of 15-20% in costs for this replacement.

Key delivery risks relate to:

- complexity of the legacy solution and associated processes that have evolved over a long period of time.
- significant number of field services resources and associated change management risks.
- complex number of integration points to operational systems.

The noted risks are mitigated through a delivery approach that will ensure:

- highly skilled project delivery staff who have previous experience in delivering similar solutions at SA Power Networks.
- access to highly skilled technical SMEs who have built a strong understanding of the complexity of the solution architecture.
- access to business SMEs with strong understanding of the processes and access to a comprehensive knowledge repository, which continues to be maintained.
- comprehensive governance structure, which is already in place, overseeing changes to CNS across an extended period.

7. How the recommended option aligns with our engagement

7.1 Alignment to customer expectations

7.1.1 Focused Conversations

The full Customer program was discussed during the customer experience and interaction Focused Conversation workshop in September 2022. Three scenarios were presented to six groups of customer representatives and advocates (18 people):

- **Scenario 1 basic self-service** – the base scenario and represented "as is" no change scenario.
- **Scenario 2 customer system replacement and consolidation** – this scenario was composed of all the projects within the Customer Technology Program involving replacements and upgrades (including the CRM and customer data replacement)– reflecting what needs to be done to maintain our existing levels of customer service in a rapidly transitioning energy environment.
- **Scenario 3 digital customer experience uplift** – this scenario added significant customer experience and digital channel improvements – reflecting 'new value' for customers.

The customer representatives were presented with details and the pricing impacts for each scenario (outlined above). Following detailed conversations, four of the six groups strongly supported Scenario 3, and two of the groups supported Scenario 2 as well as parts of Scenario 3. Hence Scenario 3 was supported by majority of the participants.

Specific comments and discussion items relevant to the CNS Replacement were:

- We need to ensure vulnerable customers are looked after.
- Customers liked receiving proactive communications regarding changes that impacted on them.
- Customers wanted us to consider efficiencies to continue to manage our costs.
- Scenario 3 benefits customers and business alike (eg, efficiency savings and happier customers).[30]

7.1.2 People's Panel

Given the strong support from the Focused Conversation, Scenario 2 was presented as 'for information' to the People's Panel so they had an understanding of the costs and bill impacts. The People's Panel was asked to discuss and provide input to Scenario 3. This is discussed further in the Personalised-on Demand Services Customer Technology program business case (refer to supporting document 5.12.22).

[30] Customer Experience and Interactions | Talking Power

8. Alignment with our vision and strategy

Our Customer Strategy 2022–2026[31] outlined in Figure 9 emphasises an imperative to maintain and continually improve our core interactions – outages, connections, enquiries, quotes, and applications – with customers.

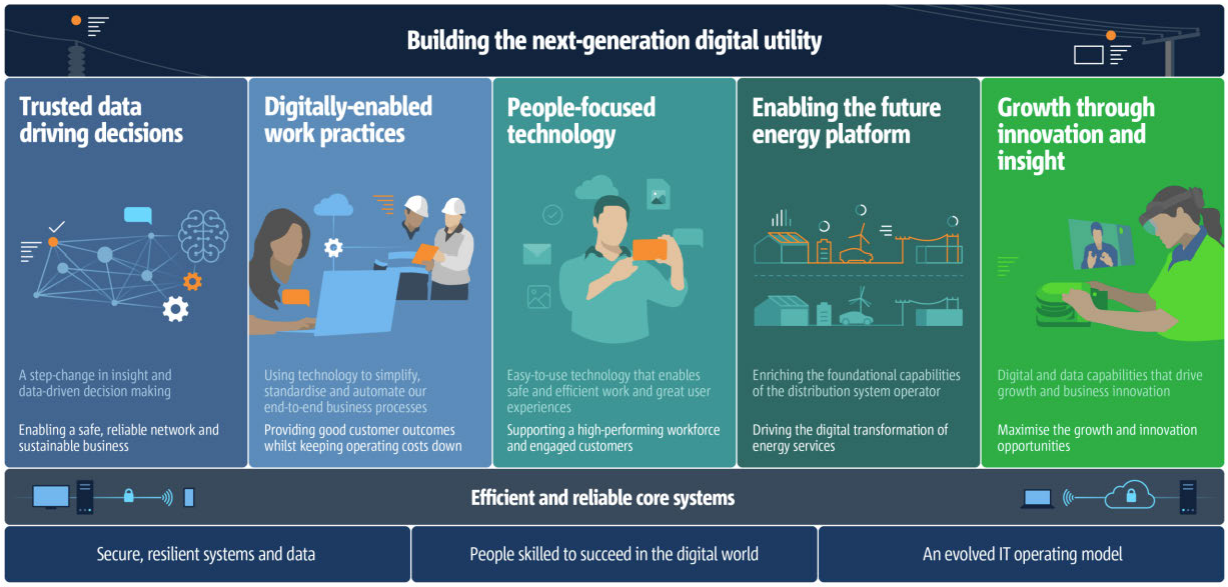
Figure 9: SA Power Networks Customer Strategy 2022–26

The existing CNS impacts our ability to deliver '*modernised, streamlined and customer-centric operations*' as it requires significant rework, processing, and inputs to meet the regulatory customer notification requirements. Replacement of the CNS will allow us to streamline processes and reduce duplication of effort, ultimately reducing cost-to-serve and improving the compliance and efficiency of our customer service obligations.

The recommendations put forward in this business case will enable us to achieve the objectives outlined in the SA Power Networks Digital & Data Strategy, outlined in Figure 10.

[31] Customer Strategy 2022–2026

Figure 10: SA Power Networks Digital & Data Strategy



An investment in the necessary replacement and improvement of the CNS is imperative to ensuring we have efficient tools and processes in place to capture accurate data at the least cost, make it available to those who need it in the most simple and useful form, and act upon it accordingly, to deliver on our promise of a reliable and functional energy network for customers.

Ensuring we have '*trusted data driving decisions'* for our customers, and that our customers are afforded a safe and reliable network, is dependent on the accuracy of our data. The existing CNS, with its complex business logic, results in frequent errors in customer notifications, which can cause harm to customers. The measures in place to override the data quality inefficiencies are manual and are therefore not cost-effective, and staff do not trust it as a source of truth. To ensure our data is understood and has the appropriate level of trust, governance and quality, the accuracy of our network and customer notifications must be improved.

'Technology systems must be people-focused.' That is, they must be easy to use and reliable so that our workforce feels supported and engaged, and is encouraged to perform efficiently. This working environment is conducive to delivering great user experiences for our customers. The CNS architecture is complex, and the history of the changes to the system logic is not accurately documented. Our staff do not have a full or reliable view of the evolution of CNS. A new CNS will avoid the need and associated costs of remediating complexities in the system and the often-significant end-to-end testing involved. A system that is designed simply and intuitively will immediately remediate any issues with customer notifications effectively and eliminate the risk of notification breaches for our customers.

9. Reasonableness of cost and benefit estimates

9.1 Cost estimates

The proposed costs for each option were estimated through completing a detailed project cost model that was structured according to our standard IT project methodology. This approach structures an IT project into six phases, which are further broken down into a total of 20 sub-phases that are then used to plan and cost the project. (Refer Table 14).

This bottom-up activity estimate for the project was then contextualised within the overall program and resources, and its timing adjusted accordingly.

Table 14: Structure of SA Power Networks IT project methodology

Phase	Sub-phase
Phase 1 – Planning, project management and coordination	Planning, project management and coordination
Phase 2 – Feasibility, innovation and POCs	Feasibility, innovation and POCs
Phase 3 – Develop and plan	Plan
	Requirements
	Business case
	Vendor selection
Phase 4 – Implement – Design and architecture	Implement – design and architecture
Phase 5 – Implement – Build and test	Software licensing (12-month upfront purchase)
	Hardware infrastructure changes
	Client device purchases
	Development
	Configuration
	Integration
	Data conversion and migration
	Testing
Phase 6 – Implement – Deploy	Training delivery
	Training materials and preparation
	Warranty
	Change management
	SME backfill

The nature of each project was flagged as to whether it was to be based on a software-as-a-service (**SaaS**) solution or was to be an on-premise implementation. This ensured that the modelling resulted in the appropriate accounting treatment of the expenditure – as operating or capital expense.

The effort required for the specific roles relevant to each phase of the project (e.g., project manager, architect, developer, tester etc.) was estimated based on our staff and our external consultants' experience of similar past projects in SA Power Networks and at other organisations. This effort was split according to our standard internal staff/external services mix of 20% internal staff and 80% external services, and costed using our standard IT cost-estimation methodology and standard resource rate card.

Where possible, external expenses, such as licence fees and external system integrator costs, were based on actual quotes, published licence fees/rates etc or market research[32]. In other cases, staff and external consultants' experience of the costs incurred in similar projects at SA Power Networks and other

[32] SAPN-DXP Market scan results (v2.0) – BDO 2021

organisations was used to provide a reasonable estimate of the costs. All costs were initially calculated bottom-up and then validated/refined with top-down analysis. Cost worksheets are included as an attachment.

9.2 Benefit estimates

An extensive and iterative process involving business and IT representatives was undertaken to define a set of reasonable benefits for this project. A summary of the process undertaken, and the key benefit types identified, is shown in Section 9.2.1.

This process aligns with our Value Framework and our ICT forecasting methodology. The use of factual historical data and future forecasts derived, where possible, from external sources, such as AEMO, ensures an industry best-practice approach that meets AER and community expectations and results in a justifiable and reasonable estimate of the benefits. Where relevant, we have undertaken sensitivity analysis to understand the degree to which the benefits vary with changes in the key assumptions, to ensure the robustness of the calculations.

9.2.1 Benefit estimation process overview

Avoiding increases in costs incurred under Option 0 – BAU

- Estimates were made as to the projected increase in relevant costs under a BAU scenario (ie, without the proposed investment). These typically related to increases in Contact Centre call volumes and SMS communications resulting from increased work on network. The volume increases vary according to the call type/subject matter and therefore impact each technology/service area differently.
- These projected cost increases were initially used in costing Option 0, as they represent a cost of not undertaking any additional investment. Subsequently, when calculating and comparing the NPVs of the individual options, the part of these costs that was also being treated as a cost avoidance benefit was removed from the total benefits related to Options 1 and 2. This ensured that they weren't being double counted in the initial calculations.
- Following this, the NPV of Option 0 was set to NIL and instead treated as a cost avoidance benefit in the other options (refer 5.3.1). This ensures that these BAU cost increases were being properly reflected as an avoided cost increase from undertaking the proposed investment under Options 1 and 2.
- While the assessed options above would actually result in a number of the projected costs being reduced below their assumed FY25 baseline, to be conservative, we have capped any claimed benefits to the increase above that baseline. These benefits are therefore fully characterised as *avoidance of future cost increases*, rather than as a reduction in the existing cost base.
- The time saving from the reduced number of Contact Centre calls, including on-hold time etc, was also translated into a saving in time for the customer. This was costed using the average South Australian weekly earnings rate from the Australian Bureau of Statistics (ABS). (Note: this was NOT part of the Option 0 costs referred to above, as it does not represent a direct cost to the business.)

Other cost savings and efficiency gains

- Several other cost savings and efficiency gains were identified through discussion with business representatives. Estimates of the impact of the investment on these cost areas were made based on actual current costs being incurred, the knowledge and experience of SA Power Networks business and IT staff, and advice from external consultants, as appropriate. In all cases, the benefits were assumed to start from the year following completion of the investment. The benefits were also 'phased in' such that the full calculated annual benefit took time to be realised, where appropriate to do so. For example, as the quality of the low-voltage network data improves over time.
- A significant contributor to the benefits from this (and other) customer technology business cases is avoiding the future cost impact of 'Technical Debt'. Continuing to use and maintain old and out of date

IT infrastructure and systems has significant implications for the future cost of not only that specific infrastructure, but of any maintenance and development activity in the IT environment. There is an increased cost overhead involved in the ongoing maintenance of compatibility and integration of these old systems with any new developments, as well as with each other. This has been estimated, based on the level of dependency with key projects and systems in the IT portfolio. The benefit of avoiding this cost of technical debt has been phased in and apportioned between relevant projects, based on the estimated reusability of the capability delivered by each project.

Growth projections

- Wherever possible, when % growth projections were used in the modelling, these were derived from actual cost and volume trends, external data (e.g., AEMO-projected EV take-up by customers) or future plans from the business (e.g., increase in work on the network). The advice of our external consultants and the experience of key business representatives were used to derive the likely future decreases in costs resulting from the investment. The growth factors used for this particular business case are summarised in Section 10.

Shared benefits

- Where an estimated cost avoidance/reduction was considered to result from the combination of more than one investment (e.g., it required both the new CNS and CRM systems), then the derived benefit was apportioned between the relevant projects according to their estimated contribution to achievement of those benefits.

10. Reasonableness of input assumptions

The following growth/trend assumptions have been used in developing the costs and benefits for this project:

Table 15: Key input assumptions and their impacts

Assumption	Source	Impact
Growth in Contact Centre calls related to planned outages.	Increase in work on the network as a proxy for planned work notifications outages.	Staff and customer time spent on calls to the contact centre.
Growth in administration overhead to check accuracy of CNS notifications.		Network and non-network staff time on checking accuracy of CNS data.
Growth in delivery of peripheral CNS notifications.	As above, plus anticipated growth in life support customers per historic trends.	Cost of mailing, calling and hand delivering notifications to customers in the 'peripheral' zone surrounding those directly affected by an outage.
Decline of number of life support customers due to proposed change in life support definition being applied.	Current record of life support customer numbers and proposed AEMC definition change.	Decreased number of life support customers will impact total number of notifications we need to send.

These are considered the best available sources for each of the above assumptions and therefore represent a reasonable basis from which to calculate the cost increases that will be avoided under Options 1 and 2.

Other inputs to the benefit calculations are documented in Section 9, above, and in the Benefits Model.

11. Scenario and sensitivity analysis

The following scenarios were adopted or tested to analyse the sensitivity of key forecast inputs:

Table 16: Key sensitivity scenarios tested and the test results

Scenario	Source	Test result
Test 1 Low-voltage network map accuracy increasing at an expediated rate, whereby accuracy levels are achieved by 2030. This assumes AEMC accelerated rollout from 2025–2030 reaching 95% of NMIs.	AEMC smart meter roll out forecasts.	The low-voltage accuracy increasing at a faster rate resulted in benefits being realised faster than anticipated in the current preferred scenario, totalling to $22.2 million of quantified benefits, and a higher NPV than the more conservative, adopted scenario.
Test 2 No change to the definition of a life support customer and continued increase of life support customer registrations at current rates.	Historic LSC registrations and rate of life support registration growth.	If the rule change is not accepted then current rules apply, with continued volume increases of life support customer registrations annually. CNS benefits would amount to $21.53 million. Given the Energy Charter's involvement, this scenario was tested but not adopted.
Test 3 A change to the definition of a life support customer (adopted scenario assumes life support customer registration goes down to 10,000) and continued increase at a rate of 1%.	Rule change impacting the volume of historic LSC registrations.	CNS benefits would amount to $19.63 million; NPV is still highly positive.
Test 4 Lower starting total for planned work volumes.	SA Power Networks Network Management department modelling.	The scenario tested had a starting total of 10,111 for planned work volume, resulting in a quantified benefits total of $18.69 million. The NPV is not negatively impacted as a result of this test. The adopted scenario was selected as it is better aligned with the projections in the deliverability assessments conducted by our Head of Works Program.

The benefits remain significantly higher than the cost to execute the program under the recommended option; the testing conducted did not significantly reduce the benefits that could be achieved by the proposed expenditure.

Additional notes supporting the testing conducted:

- **Test 1:** Has an issue of notifying customers of outages inaccurately due to inaccuracy of LV network map, meaning we aren't notifying the correct customers or are notifying more customers than required. The cost-and-benefits model is based on current policies and regulations, with steady rather than rapid improvement of LV network map accuracy, reflected in the projected increase in the number of calls to the Contact Centre and the volume of SMS notifications sent to customers by SA Power Networks.
- **Test 2:** Due to the proposed life support definition change, the number of life support customers is expected to decrease significantly (down to ~10,000 life support customers, which is the adopted scenario). While it is assumed that the rule will come into effect in 2024, the remediation to reduce the numbers on record is likely to take approximately 12–15 months. Hence, for the purposes of our model, we have assumed the number of life support customers will decrease to 10,000 in 2025 and increase by 1% p.a. in subsequent years, based on the average annual percentage change from the Department for Trade and Investment's projected total population and growth rates for South Australia in 2021–51.

- **Test 3:** If the rule change is accepted but instead the volume of life support customer registrations continued to increase annually, then a tested scenario took the 2022 volume of LSC registrations as being approximately 18,500 and 2023 year-to-date volume of LSC registrations being approximately 19,000 to forecast a 3.2% annual increase after 2025, where the number of life support customers will decrease to 10,000.
- **Test 4:** The Network Program business case costs assume benefits from the CNS replacement will be realised in the next regulatory period and does not account for any uplift in FTE to manage the quality of CNS notifications. Hence, the FTE savings are described in the CNS business case as an efficiency gain, where the CNS replacement would allow FTE across Field Services and Customer and Community to use time saved to service increased customer demand. Without a replacement, the CNS admin overheads will rise in alignment with the increased network REPEX activity, requiring additional FTE resources. The CNS admin cost avoided and avoidance of hiring additional FTE was quantified as a benefit and calculated from the projected CNS notification volumes and the total minutes spent by staff manually verifying each CNS notification (this was evidenced in a survey of 45 of our employees in various roles across the Field Services and Customer and Community departments, who provide support and check CNS).

A. Appendix A – Cost models

Option 0:

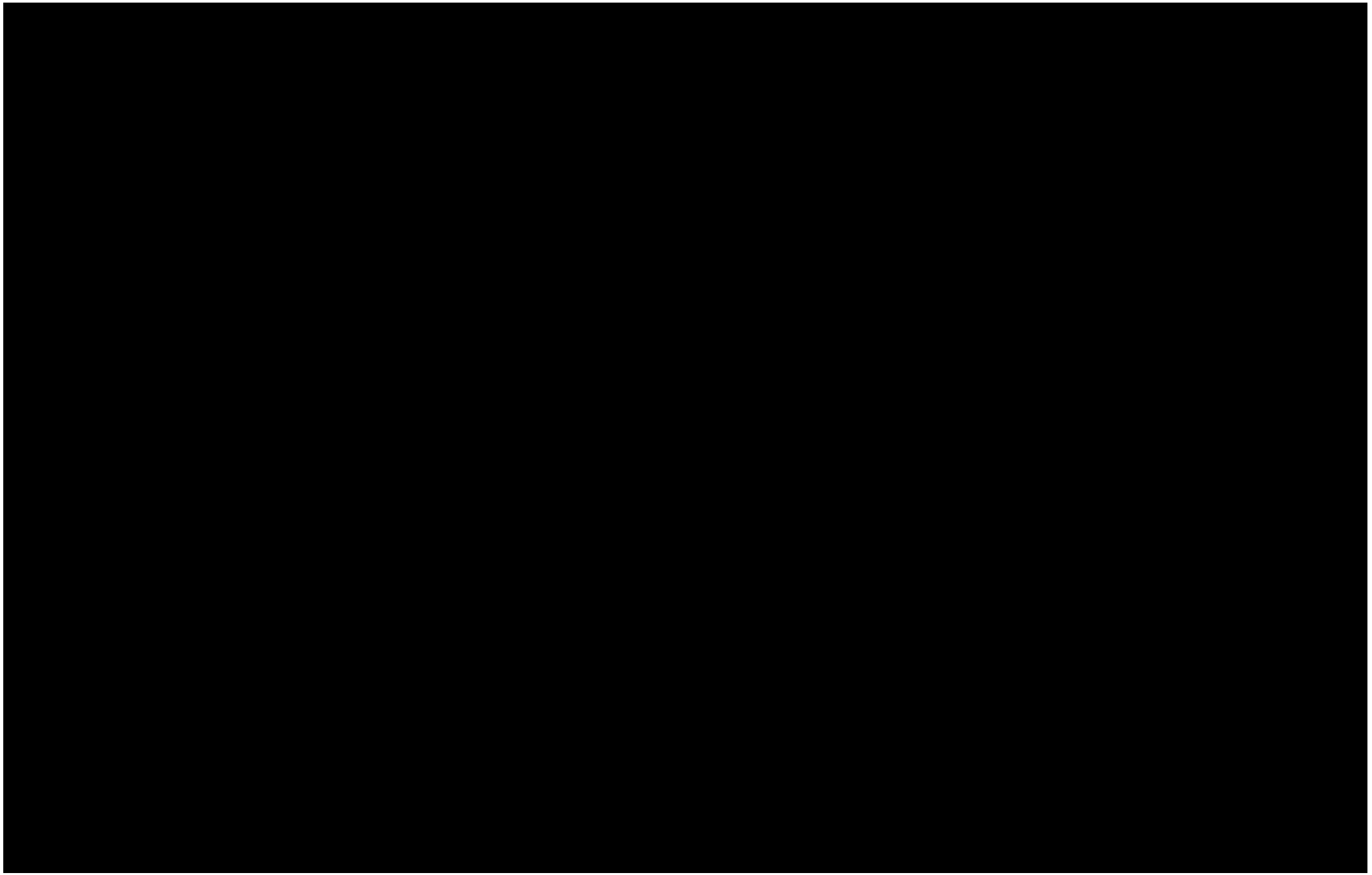
Customer Technology Program estimate – No change.xlsm

Option 1:

Customer Technology Program estimate – Preferred.xlsm

Option 2:

Customer Technology Program estimate – Non-Preferred.xlsm



[redacted]

[33] For each option, the overall risk level is the highest of the individual risk levels.